

PATENT  
1254-0261PUS1

## IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: N. OKAMOTO, et al. Conf.: 6898

Appl. No.: 10/510,505 Group: 2681

Filed: October 7, 2004 Examiner: Unassigned

For: RADIO COMMUNICATION SYSTEM

LETTERCommissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

January 24, 2005

Sir:

Subsequent to the filing of the above-identified application on October 7, 2004, attached hereto is an English translation of the International Preliminary Examination Report (IPER 409) that should be made of record in the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH &amp; BIRCH, LLP

By   
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**1254-0261PUS1**

## PATENT COOPERATION TREATY

PCT Application  
PCT/JP2003/002059



PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PH-1722-PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP03/02059	International filing date (day/month/year) 25 February 2003 (25.02.03)	Priority date (day/month/year) 08 April 2002 (08.04.02)
International Patent Classification (IPC) or national classification and IPC H04J 11/00		
Applicant	SHARP KABUSHIKI KAISHA	

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 7 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 8 sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 26 June 2003 (26.06.03)	Date of completion of this report 13 November 2003 (13.11.2003)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/JP03/02059

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

 the international application as originally filed the description:

pages 1-29 , as originally filed

pages , filed with the demand

pages , filed with the letter of \_\_\_\_\_

 the claims:

pages 8-14, 18, 22 , as originally filed

pages , as amended (together with any statement under Article 19

pages , filed with the demand

pages 1-7, 15-17, 19-21, 23-25 , filed with the letter of 24 October 2003 (24.10.2003)

 the drawings:

pages 1-12 , as originally filed

pages , filed with the demand

pages , filed with the letter of \_\_\_\_\_

 the sequence listing part of the description:

pages , as originally filed

pages , filed with the demand

pages , filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

 the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4.  The amendments have resulted in the cancellation of: the description, pages \_\_\_\_\_ the claims, Nos. \_\_\_\_\_ the drawings, sheets/fig \_\_\_\_\_5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

International application No.

PCT/JP03/02059

**IV. Lack of unity of invention**

1. In response to the invitation to restrict or pay additional fees the applicant has:

- restricted the claims.
- paid additional fees.
- paid additional fees under protest.
- neither restricted nor paid additional fees.

2.  This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- complied with.
- not complied with for the following reasons:

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- all parts.
- the parts relating to claims Nos. \_\_\_\_\_

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/JP 03/02059

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	<u>1-17, 19-21, 23-25</u>	YES
	Claims	<u>18, 22</u>	NO
Inventive step (IS)	Claims		YES
	Claims	<u>1-25</u>	NO
Industrial applicability (IA)	Claims	<u>1-25</u>	YES
	Claims		NO

## 2. Citations and explanations

Document 1: JP 10-303849 A (Lucent Technologies Inc.), 13 November 1998, entire text; all drawings

Document 2: JP 2001-308746 A (Mitsubishi Electric Corporation), 2 November 2001, page 5, right column, line 25 to page 6, left column, line 25; page 7, right column, lines 37 to 47

Document 3: JP 11-055210 A (Nippon Telegraph and Telephone Corporation), 26 February 1999, fig. 1

Document 4: JP 11-508417 A (Telefon AB ML Ericsson (Publ.)), 21 July 1999, entire text; all drawings

Document 5: JP 62-502932 A (Telebit Corporation), 19 November 1987, page 9, upper left column, line 8 to lower right column, line 19; fig. 5; fig. 6

Document 6: JP 11-191794 A (Sony Corporation), 13 July 1999, page 4, left column, line 28 to right column, line 3

Document 7: JP 2001-320346 A (Toshiba Corporation), 16 November, page 15, left column, line 47 to right column, line 3; fig. 4

Document 8: JP 2001-520487 A (Aware, Inc.), 30 October 2001, page 35, lines 13 to 21; page 48, lines 12 to 14

Document 9: JP 2002-016577 A (Sony Corporation), 18 January 2002, page 7, right column, lines 2 to 8

Document 10: JP 2002-504283 A (Aware, Inc.), 5 February 2002, entire text; all drawings

Document 11: JP 2000-286821 A (Matsushita Electric Industrial Co., Ltd.), 13 October 2000, entire text; all drawings

#### Claim 15

Document 1 sets forth a feature wherein modulation method and coding rate are varied for each sub-carrier according to the reception status of each sub-carrier, thereby controlling the transmission rate, and it would be obvious to a person skilled in the art that OFDM is used in TDMA. In addition, the use of the power of each sub-carrier as the reception status of sub-carriers is common general technical knowledge in OFDM (for example, the expression "control at sub-carrier level" disclosed in the claims is understood to include the determination of the signal level and the noise level for each sub-carrier to calculate the signal to noise ratio as described in document 5, but document 11 has been added anew as an example of a document disclosing a feature wherein the power of sub-carriers serves as reception status).

Therefore, taking into account the aforementioned common general technical knowledge, if the feature set forth in document 1 is used in TDMA, it would become the feature that "TDMA timeslots are controlled at a sub-carrier level", therefore it would be easy for a person skilled in the art to derive the feature set forth in claim 15.

#### Claim 16

Document 1 sets forth a feature wherein the

modulation method and coding rate are varied for each sub-carrier according to the reception status of each sub-carrier, thereby controlling the transfer rate, and it would be obvious to a person skilled in the art that OFDM can be used in TDMA. Moreover, as indicated in claim 15, the use of the power of each sub-carrier as a parameter indicating the reception status of sub-carriers is common general technical knowledge in OFDM. Moreover, document 2 sets forth a feature wherein with regard to the maximum transmission rate and the desired reception power, a control signal is transmitted from one communication device to another communication device, and it would be easy for a person skilled in the art to use this technique as control in document 1.

#### Claims 18 and 22

Document 3 sets forth a feature wherein the reception power for each sub-carrier is measured at a first wireless station, and information concerning the measured power is communicated to a second wireless station, therefore there is no particular difference between the feature set forth in claims 18 and 22 and the invention set forth in document 3.

#### Claims 1 to 14, 17, 19 to 21, 23 to 25

Document 4 sets forth a feature wherein only sub-carriers are selected which are capable of obtaining a transmission rate of a predetermined rate or higher based on the reception status of each sub-carrier.

Document 5 sets forth a technique of carrying out communication by changing the multi-valued number according to reception status. (Similarly, it is a known technique to vary the coding rate according to reception status. See document 1, for example.)

Document 6 indicates that control is carried out

according to the position of the terminal as a parameter for judging the reception status to determine the multi-valued number.

In addition, as described in claim 15, the use of the power of each sub-carrier as a parameter indicating reception status of sub-carriers is common general technical knowledge in OFDM.

It would therefore be easy for a person skilled in the art to employ the control disclosed in document 5 in the sub-carrier selected in document 4. In addition, when doing so, the feature wherein the sub-carrier reception status is measured by the reception power for each sub-carrier and the reception status is judged by the position of the terminal is understood to be a technical feature which a person skilled in the art could select as necessary.

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